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LOYOLA UNIVERSITY CHICAGO

DEPRESSIVE AFFECT AND EATING PROBLEMS
IN ADOLESCENT FEMALES:
AN ASSESSMENT OF DIRECTION AND INFLUENCE
USING LONGITUDINAL DATA

A THESIS SUBMITTED TO
THE FACULTY OF THE GRADUATE SCHOOL
IN CANDIDACY FOR THE DEGREE OF
MASTER OF ARTS

DEPARTMENT OF PSYCHOLOGY

BY

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CHICAGO, ILLINOIS

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CHAPTER 1

INTRODUCTION

Over the last two decades, an increasing amount of research has been dedicated to understanding the relationship between eating problems and depression (see Strober & Katz, 1988). Investigators have devoted time and effort attempting to answer the questions, "Is there an association between eating problems and depression?" and "If so, how, specifically, are they related?" While most in the field would agree on an answer to the first—yes, there is some sort of an association—many would be unable to reach agreement regarding the second (Heatherton & Baumeister, 1991; Leung & Steiger, 1991; Walsh, Roose, Glassman, Gladis, & Sadik, 1985). Currently, the body of knowledge related to eating problems and depression seems to fall into two categories. Within the first class is a broad range of correlational studies that explore the existence of a link between eating problems and depression (e.g., Herzog, 1986; Hom & Giles, 1991; Lancelot, Brooks-Gunn, Warren & Newman, 1991). Within the second lies a more complex set of research which begins to raise and explore questions about possible causal relationships between the two (e.g., Heatherton & Baumeister, 1991; Leung & Steiger,

1991). Many studies have been conducted in the former group; however, very few have emerged from the latter.

The present study was designed to add to the fledgling group of latter studies by investigating the nature of the relationship between the development of eating problems and depressive symptomology in female adolescents over time. Specifically, it seeks to address the following questions: a) does a directional relationship exist between eating problems and depressive affect; b) if so, do eating problems appear to influence depressive affect, or does depressive affect appear to influence eating problems; and, c) does this relationship differ by developmental stage (e.g., early vs middle adolescence)?

These questions are important to answer from both a developmental and a clinical perspective, particularly given the incidence of eating problems and depressive symptomology in the female adolescent population. Hoffman (1996) estimates that approximately 1% of female adolescents suffer from anorexia nervosa and another 2-3% suffer from bulimia nervosa. Rates of clinical depression in children and adolescents vary more widely, with estimates ranging from 2-8% (Gould & Shaffer, 1994). These numbers do not include those female adolescents suffering from subclinical eating problems and depressive symptomology.

The present paper will first define the constructs

being investigated and then briefly review the literature—correlational, directional, and developmental—which explores the relationship between eating problems and depressive affect. Next, the methodology and results of the present study are described, followed by a discussion of the results and their implications.

Construct Definitions

Eating Problems

The construct of eating problems can be conceptualized and has been operationalized in a number of different ways. First, it can refer to specific clinical disorders such as anorexia nervosa and bulimia nervosa (American Psychiatric Association, 1994). To meet the criteria for anorexia nervosa, an individual must demonstrate refusal to maintain weight considered normal for her age and height (i.e., below 85%) and an intense fear of becoming fat or gaining weight. In addition, she must show a disturbance in the way her body is experienced, be unduly influenced by her body weight or shape, or deny the seriousness of her low body weight. For post-menarcheal females, amenorrhea must also be present. To meet the criteria for bulimia nervosa, an individual must demonstrate recurrent episodes of binge eating and inappropriate compensatory behavior to prevent weight gain (at least two times per week for three months). In addition, her self-evaluation must be unduly influenced by her body shape and weight. These disturbances cannot

occur exclusively during episodes of anorexia nervosa.

In addition to clinical eating disorders, eating problems can also refer to more moderate symptoms and signs of problematic eating found in the normal population such as dieting and bingeing. The literature reviewed within this paper includes studies conducted on females suffering from clinical disorders as well as some studies conducted on females facing subclinical eating problems. It does not, however, include studies on overeating disorders such as obesity.

The present study measures the continuum of problematic eating attitudes and behaviors (including both restricting and bingeing phenomenon) in a nonclinical population and does not measure clinical eating disorders per se. Two self-report measures—the Weight and Eating Concerns scale (WEC; Richards, Casper & Larson, 1990) and the Eating Attitudes Test-26 (EAT-26; Garner & Garfinkel, 1979)—are used to assess eating problems.

Depression

Similar to eating problems, depression can also be defined in a number of different ways. For instance, Hammen and Compas (1994) have distinguished between depressed mood, depressive syndromes, and depressive disorders. According to them, "Depressed mood and affect are symptoms of depression and refer to the presence of sad mood, unhappiness, or blue feelings for an unspecified period of

time" (Hammen & Compas, 1994, p. 586). These symptoms can occur in the normal population. Depressive syndromes, on the other hand, are constellations of emotions and behaviors reflecting depression "that have been found to occur together in an identifiable pattern at a rate that exceeds chance" (Hammen & Compas, 1994, p. 587). No particular explanation or model regarding the causes of the symptoms is typically provided. Achenbach's (1985) taxonomy is an example of this approach. Depression can also refer to a specific clinical disorder such as major depressive disorder or dysthymia (American Psychiatric Association, 1994). To meet criteria for major depressive disorder, an adolescent must have experienced five or more of the following symptoms for at least two weeks: a) depressed or irritable mood, b) diminished interest in activities, c) significant weight loss or weight gain (5% body weight change within one month), d) sleeping difficulties, e) psychomotor agitation or retardation, f) decreased energy, g) feelings of worthlessness or excessive guilt, h) decreased ability to concentrate or make decisions, and i) suicidal ideation. These symptoms must occur at a level that is different from previous functioning and cause significant distress. To meet criteria for dysthymia, an adolescent must be depressed or irritable for at least one year with no more than two months symptom-free. In addition, two or more of the following symptoms must be

present: a) eating problems, b) sleeping difficulties, c) decreased energy, d) low self-esteem, e) decreased ability to concentrate or make decisions, and f) feelings of hopelessness. Major depressive disorder must not occur during the first year of the dysthymic disorder.

Studies included in this review refer to both depressed mood and depressive disorders. Although distinctions are clarified when provided in the literature, this is not always possible, for as Cantwell (1990) notes, "Lack of precision in terminology has bedeviled not only some of the early research but also some of the more recent research in the study of depression in the early years" (p. 293).

The present study measures the continuum of depressive symptomology in a nonclinical population and not clinical depression per se. Two self-report measures—the Child Depression Inventory (CDI; Kovacs, 1985) and the Beck Depression Inventory (BDI-S; Beck & Beck, 1972)—are used to assess depressive affect.

Correlational Studies

A number of correlational studies have established a relationship between eating problems and depression. Herzog (1986) and Viesselman and Roig (1985) have determined that depressive symptomology occurs frequently in the presentation of clinical eating disorders (estimates range from 20-100% of cases). Similarly, other researchers have

demonstrated that depressive symptomology is more prevalent among individuals with eating problems than it is among normal controls (Crowther & Chernyk, 1986; Lancelot, Brooks-Gunn, Warren & Newman, 1991). Still others have found a positive relationship between the severity of the eating problem and the severity of depressive symptoms (Rosen, Murkofsky, Steckler & Skolnick, 1989; Willmuth, Leitenberg, Rosen & Cado, 1988).

In addition to exploring the presentation of depression symptomology within the population of individuals with eating problems, investigators have explored the level of comorbidity between clinical eating disorders and clinical affective disorders. Herzog, Keller, Saks, Yeh, & Lavori (1992) report that most studies of this type show well-documented rates of major depressive disorders within the population of females suffering from clinical eating disorders, ranging from 47-73% for bulimics and 36-81% for anorexics. In their own study, Herzog et al. (1992) found that their subjects who met criteria for bulimia nervosa and anorexia nervosa had lifetime prevalence rates of major depression of 63% and 73%, respectively.

Two other sets of correlational studies have assessed the degree to which a relationship exists between eating problems and depression by exploring a) if eating disordered patients' level of depressive affect is affected

by treatment interventions for eating problems and b) if level of depressive affect predicts treatment outcome in eating problems. Hom and Giles (1991), for instance, measured the extent of bulimic behavior and depressive affect before and after a cognitive-behavioral treatment intervention for clinical bulimia. They found that subjects' depression and bulimia scores had "declined from severe levels at pre-treatment to normal or mild levels at post-treatment" (Hom & Giles, 1991, p. 187). This study suggests that effectively treating bulimia also reduces patients' level of depressive symptomology—further evidence for some sort of a relationship between the two constructs. The second type of study related to treatment examines which factors best predict treatment outcome in eating problems. After measuring such factors as self-esteem, social adjustment, and depressive symptomology in their studies of females with clinical eating disorders, Maddocks and Kaplan (1991) and Davis, Olmstead, and Rockert (1992) found that depressive affect was "the single-most powerful predictor of outcome" (Davis et al., 1992, p. 209)—again, suggesting a relationship.

In addition to assessing the effect treating eating problems has on depressive symptomology, a number of researchers have explored the effects of antidepressants on eating disorder symptomology. Kennedy and Garfinkel (1992) suggest that "most controlled trials of antidepressants

have found a significant reduction in the frequency of behaviors associated with bulimia nervosa" (p. 312), and Herzog (1986) indicates that "almost all of the short-term studies of antidepressants for bulimia have been promising" (p. 20). These results appear to provide support for the existence of a relationship between eating problems and depressive affect; however, they might also be explained by the fact that antidepressants have been found to reduce addictive behavior in general (American Medical Association, 1992; Miller, 1995; Naranjo & Bremner, 1993).

In light of the fact that such a plethora of diverse evidence suggests a relationship between eating problems and depression, it is worth considering whether eating problems are simply a variant of affective illness. Although results of studies designed to compare individuals with eating problems and individuals with depressive symptomology and clinical disorders are not entirely conclusive, a number suggest differences between the two groups in sleep patterns, AGP levels, and specific maladaptive cognitions, indicating that eating and affective problems are not likely variations of the same illness (Healy et al., 1991; Kupfer, Reynolds, Grochocinski, Ulrich, & McEachran, 1986; Schlesier-Carter, Hamilton, O'Neil, Lydiard, & Malcolm, 1989). In addition, other research has demonstrated that although affective disorders are found at higher rates in the population of

females with eating problems (e.g., Herzog et al., 1992), eating problems are not found in affectively disordered patients or their families at higher rates than normal, a finding one would expect if the two phenomenon truly shared a common etiologic pathway (Simpson, Al-Mufti, Andersen, & DePaulo, 1992).

Although the correlational studies reviewed have been conducted by a wide range of researchers and all provide support for the notion that a relationship exists between eating problems and depressive affect, most share several design issues in common which limit their impact. First, nearly all the studies have been cross-sectional or retrospective, and hence, lack a developmental emphasis. Second, most individuals studied have represented a clinical population, making it difficult to assess how problems emerge and develop. Third, most participants have been late adolescent- or college-aged—a drawback since both depressive symptomology and eating problems typically emerge in early and middle adolescence (Attie & Brooks-Gunn, 1989; Nolen-Hoeksema & Girgus, 1994). Finally, none of the studies have been designed to explore causality, so they share strikingly similar conclusions: "The nature of this association is difficult to discern (Rothschild et al., 1994, p. 8); "The converging evidence . . . is not such as to allow any conclusion about causal relationships" (Strober & Katz, 1988, p. 93); and "Depressive affect and

eating problems would appear to be linked developmentally, although causal links have yet to be determined" (Graber, Brooks-Gunn, Paikoff, & Warren, 1994, p. 824).

Causal Frameworks

In spite of the numerous correlational investigations, few studies have examined the direction of the relationship between eating problems and depressive affect. However, a number of researchers have suggested possible theories and frameworks to account for it (see Figure 1). Strober and Katz (1988), for one, offer four possible models to explain the relationship between eating problems (including both clinical disorders of anorexia nervosa and bulimia nervosa) and depression. In Model 1, eating problems are seen as a way to cope with negative affect and experiences associated with depression, and hence, depression is thought to cause eating problems. In Model 2, the relationship is reversed. Strober and Katz (1988) propose in this model that perhaps depressive affect results from the nutritional inadequacies and abnormalities inherent in eating problems—i.e., aspects of malnutrition may create "deficiencies in precursors essential for the synthesis of neurotransmitters—[synthesis that is] required for normal limbic-hypothalamic system functioning" (p. 101). Model 3 also proposes that eating problems precipitate depressive symptomology; however, Strober and Katz (1988) suggest that in this model it is the "multiplicity of social, psychological and physical

FIGURE 1

MODELS OF POSSIBLE RELATIONSHIPS BETWEEN
DEPRESSIVE AFFECT AND EATING PROBLEMS

MODEL 1: Depressive Affect \longrightarrow Eating Problems

Eating is a way to cope with negative affect/experiences

MODEL 2: Eating Problems $\xrightarrow{\text{Malnutrition}}$ Depressive Affect

Biological/physiological effects of malnutrition lead to depressive symptoms

MODEL 3: Eating Problems $\xrightarrow[\text{Stress}]{\text{Psychosocial}}$ Depressive Affect

Psychological/social factors (e.g., loss of control) associated with eating pathologies lead to depressive symptoms

MODEL 4:

```

      Third Variable
     /      \
    /        \
Eating Problems  Depressive Affect
  
```

A third variable leads to the increased likelihood of their co-occurrence

MODEL 5:

```

      Eating Problems
      /      \
     /        \
    /            \
   /              \
  /                \
Depressive Affect
  
```

Complex, interactive relationship in which each leads to the commencement and maintenance of the other

stresses" associated with eating disturbances (e.g., loss of control, physical distortions) that are the precursors of depression (p. 101). Unlike the first three models, Model 4 does not describe a specific causal relationship. Instead, Strober and Katz (1988) suggest that perhaps eating problems and depressive affect are caused by a third variable common to both (e.g., genetic, psychosocial [self-esteem, body image]).

In addition to the frameworks outlined by Strober and Katz (1988), a fifth possible relationship between eating problems and depressive symptomology has been postulated by Leung and Steiger (1991). As they state, "It is also plausible that mechanisms linking depression symptoms and eating pathology are very complex, involving interactive, circular pathways of causation. In other words, depressive symptoms and eating abnormalities may each cause the other, equally and in a cyclical nature" (p. 518). For instance, perhaps females begin to eat pathologically to cope with negative affect; however, as they do, they may feel guilty or ashamed of their eating and hence, exacerbate the depressive affect and begin a circular pattern of behavior. Or, females may begin a circular pattern by having a "bad diet day" and then feel sad or disappointed about their failure, leading to increased depressive affect and ultimately, increased problematic eating to cope with the negative affect.

Directional Studies

In spite of these causal frameworks, research designed to test causal hypotheses can be described as fledgling at best, and the research that does exist does not favor one model over the others. Using a Model 1 framework, Heatherton and Baumeister (1991) theorize that bulimics engage in binge eating because it narrows their focus to immediate sensations, temporarily blocking out negative affect and self-awareness—theirs is an "escape hypothesis." In support of their theory, they cite Rosen and Leitenberg's (1985) and Thompson, Berg, and Shatford's (1987) studies which establish that some bulimics use food as a coping mechanism to escape from or regulate negative affect.

Cohen-Tovee (1993) also provides some empirical support for Model 1 in a study that examined the effects of inducing depressed mood in two groups of normal women, one of which placed a high value on shape or weight and another of which placed a low value on shape or weight. After inducing depressed mood in her subjects through music and printed statements, Cohen-Tovee (1993) found that "concerns with shape [became] significantly elevated in the former group compared with the latter" (p. 223). Cools, Schotte, and McNally (1992) also found that when negative affect was induced in their group of restrained eaters, eating increased. While these studies do not provide direct

evidence that depressive affect causes eating problems, they do suggest that depressive affect may aggravate negative body- and weight-related thoughts, concerns, and behaviors in women who may be at risk for eating problems. As Cohen-Tovee (1993) states, however, "To establish the relationship, if any . . . prospective studies [will] be required" (p. 227).

Prospective studies will also be required to ground Models 2 and 3. Little research has been conducted to date to test the causal theories behind these models that posit that eating problems precipitate depressive affect. Keys, Brozek, Henschel, Michelson, & Taylor's (1950) classic research on the effects of starvation comes close to offering some support for the hypothesis that eating problems lead to depressive symptomology, but it is difficult to tease out whether malnutrition is detrimentally affecting a specific neurotransmitter system linked to depression (Model 2) or creating fatigue and/or other physical and psychological effects related to depression (Model 3).

In Beebe's (1994) review of possible relationships between bulimia nervosa and depression, a hopelessness hypothesis of bulimia which would fall under the "Model 3" category is suggested. In essence, Beebe (1994) posits that in females with predisposing factors to depression (e.g., depressogenic attributional style), dietary failure

and the binge-purge cycle are perceived as negative events and contribute to the development of hopelessness, and ultimately, depression. One study cited to support the hopelessness hypothesis found that bingeing is marked by a subjective loss of control (feeling helpless and panicked), which presumably may contribute to feelings of hopelessness (Cooper et al., 1988).

Several studies have attempted to assess, temporally, which comes first—the eating problems or the depressive affect—with the hope that any pattern in onset timing would help explain the nature of the pathway. Two studies designed to shed light on this issue actually provide supporting evidence for both the eating problems-to-depressive affect pathway and the depressive affect-to-eating problems pathway. In their study of patients with clinical eating disorders, Piran, Kennedy, Garfinkel and Ownes (1985) found that in 44% of those subjects who had experienced an episode of major depressive disorder in their lives, the depression preceded the onset of the eating disorder (which means 54% experienced the reverse or some undetermined pattern). Walsh, Roose, Glassman, Gladis, and Sadik (1985) found that depression preceded the onset of bulimia nervosa in a slightly lower percentage of their subjects with a history of clinical depression—25%. If one were to assume, then, that the disorder or symptoms which surface first in the sequence somehow influence the second,

then these results suggest that depressive affect and eating problems either influence one another differently in different subgroups, or do not influence one another in a direct way at all (i.e., some third variable underlies both experiences)—or both. Exploring this second possibility (that of a third variable) has also been the subject of very few studies to date.

Leung and Steiger (1991) indicate that one possible third variable linking depressive affect and eating problems is a common genetic vulnerability. They cite as evidence the fact that the risk for major affective disorder is greater among relatives of bulimics than among relatives of nonpsychiatric controls. However, this is weak stand-alone evidence, for the environment may also play a role in the common within-family manifestation of depression and eating problems.

It should be obvious that, currently, no conclusive evidence exists for any one particular model. This may be due in part to a simple lack of investigation. Clearly, more research needs to be conducted—this field is truly in its early stages. Another piece of the puzzle, however, may lie in the kind of directional research that has been conducted to date—typically, investigators have employed cross-sectional or retrospective designs with late adolescent or college-age subjects—in spite of the fact that research has shown that eating problems arise in early

and middle adolescence. Exceptions to this generalization are one longitudinal study designed to explore direction between eating problems and depressive affect and one longitudinal study designed to study the development of eating problems in general.

With regard to the former, Leung and Steiger (1991) employed a cross-lagged panel design to study nonclinical high school girls. After assessing level of mood and eating disturbance across a six-month interval, they compared "cross-lagged correlations from mood to eating pathology and from eating pathology to mood disturbance" and found no predominant directional sequence (Leung & Steiger, 1991, p. 513). Although their study was designed to explore directional hypotheses, it is possible that the six-month interval and/or the statistical analyses were ineffective in testing direction.

Graber, Brooks-Gunn, Paikoff, and Warren (1994) conducted a more comprehensive (8-year) longitudinal study in their examination of the development of eating problems in adolescent females. Although they did not conduct any directional analyses, Graber et al. (1994) did find that only the group of females who had chronic eating problems were "distinct in the level of depressive affect reported"—they reported the highest levels of depressive affect over time (p. 831). In addition, this group of girls continued to show higher levels of depressive symptomology into young

adulthood.

Developmental Perspective

Related to the lack of longitudinal research is an absence of a developmental perspective. Very few of the models outlined and studies conducted have taken into account the context of challenges confronting adolescents when exploring the relationship between eating problems and depressive affect. As Attie and Brooks-Gunn (1989) note, this absence "is unfortunate, given that eating problems typically have their onset during early to middle adolescence, are strongly gender- and class-related, and are closely tied to the biological and psychosocial changes that occur during the adolescent period" (p.70).

Challenges of Early Adolescence

Puberty. Although individuals confront a number of diverse challenges during the adolescent life phase, puberty has been shown to be a major challenge in and of itself for females. This is particularly true in recent years, given the increasingly thin cultural ideal for beauty which is unattainable for most women and adolescents after puberty (Faust, 1983). Research has shown that during puberty, women gain body fat, and this increase in body fat is associated with desires to be thinner and body dissatisfaction (Dornbusch et al., 1984). Body dissatisfaction, in turn, has been associated with increased levels of depressive symptoms during adolescence

(Rierdan, Koff, & Stubbs, 1988). In fact, since females are more often dissatisfied with their bodies as they mature, Nolen-Hoeksema and Girgus (1994) suggest that "body dissatisfaction may account for a substantial part of the gender difference in depressive symptoms in adolescence" (p. 435).

The increase in body fat that occurs during puberty has also been associated with problematic eating symptoms (Adams, Katz, Beauchamp, Cohen, & Zavis, 1993; Killen, Hayward, & Litt, 1992). DeCastro and Goldstein (1995) found that postpubertal girls had greater food intake regulation and restraint (given their body weight) and less healthy eating attitudes and behaviors than prepubertal girls. Koff and Rierdan (1993) have suggested that the psychological dimension of body image may mediate the relationship between body fatness and eating disturbances.

School transitions. Puberty does not occur in a vacuum but instead in the context of other major adolescent transitions, such as the transition from elementary to junior high school. Researchers have shown that a number of changes take place during this transition which can be stressful for some adolescents: a move to a larger school with multiple teachers for multiple subjects (Simmons & Blyth, 1987); less personal student-teacher relationships; more rigorous academic standards; a decline in decision making; and increased emphasis on competition (Eccles et

al., 1993). Perhaps because of these changes, this transition to junior high has been associated with decreases in self-esteem (Wigfield, Eccles, Mac Iver, Reuman, & Midgley, 1991). For girls, the timing of school transitions and puberty may be particularly important in determining adjustment. Petersen, Sarigiani, and Kennedy (1991) found that those girls who experienced peak pubertal growth prior to or simultaneous with the transition to junior high reported poorer emotional tone (including more depressive affect) than those girls who experienced peak pubertal growth at least six months after the school change.

Sexual abuse. In addition to puberty and school transition, girls can face additional challenges during adolescence which may lead them to experience more depressive affect, and possibly, more eating problems. For example, in early adolescence, they are at increased risk of rape and other kinds of sexual abuse (Russell, 1984; Trickett & Putnam, 1993)—and sexual abuse has been associated with increased risk of depression (see Cutler & Nolen-Hoeksema, 1991).

Gender role intensification. As girls enter adolescence, they also face increased pressure to conform to the female gender role (e.g., to pursue "feminine" gender-typed activities and occupations) (Gove & Herb, 1974). In their study, Girgus, Nolen-Hoeksema, Paul and

Spears (1991) found that those females who participated more in feminine gender-typed activities were more depressed than those who participated less.

Challenges of Middle Adolescence

Many of the kinds of challenges noted (e.g., puberty, gender role intensification) are first faced by females during early adolescence; consequently, development in early adolescence is at least partially focused on adjusting to transitions. Fewer of these environmental, psychosocial and biological transitions appear to commence during middle adolescence. As a result, many middle adolescents are likely less focused on adjusting to specific transitions as they are on establishing broader patterns of behavior and methods of coping.

One such pattern of behavior that some middle adolescents begin to establish is problematic eating (DeCastro & Goldstein, 1995). Poor eating habits are likely established during middle adolescence since most girls have reached puberty by ninth grade (Tanner, 1962), and hence, are "settling in" to their bodies at the same time that they may becoming most aware of the thin cultural ideal.

Unfortunately, a single, integrated theory about how these contextual and developmental challenges faced at adolescence influence the relationship between eating problems and depressive affect does not yet exist. However, incorporating both a broad developmental perspective and

the findings that do exist into any depressive affect/eating problems framework would seem to behoove the field at this point.

Summary and Hypotheses

In summary, a relationship has been established between eating problems and depressive affect; however direction between the two has not been investigated rigorously. Studies conducted to date have been primarily cross-sectional or retrospective, and executed on college-aged or late-adolescent individuals from a clinical population. Investigators have typically not attempted to incorporate the related developmental literature in their hypotheses or theories, and hence, have not explored whether the relationship between eating problems and depressive affect might differ by developmental stage.

The present study was designed to investigate the nature of the relationship between the development of eating problems and depressive symptomology in adolescent females. It intends not only to explore the direction of the relationship, but also determine if this relationship changes over time. Unlike most previous studies, nonclinical females were studied over six years, beginning in early adolescence.

Hypothesis 1: Early Adolescence

It is expected that eating problems result as girls experience the negative affect associated with the

challenges and transitions of early adolescence. It is thus hypothesized that more depressive affect will predict increased future eating problems in early adolescence—

"Model 1."

Hypothesis 2: Later Adolescence

In later adolescence, however, it is expected that depressive symptoms result as female adolescents establish patterns of problematic eating. It is thus hypothesized that more eating problems will predict increased future depressive affect in older adolescents—"Model 3."

Early vs Later Adolescence

In the present study, it is expected that more depressive affect will predict increases in eating problems in fifth through eighth graders ("early adolescence") and more eating problems will predict increases in depressive affect in ninth graders through girls who are three years post-high school ("later adolescence"). The change in direction between eating problems and depressive affect is expected to occur during the transition between eighth and ninth grades for two reasons. First, eating problems have been associated with puberty and ensuing body dissatisfaction (DeCastro & Goldstein, 1995; Dornbusch et al., 1984; Killen, Hayward, & Litt, 1992). Since most females have reached menarche by ninth grade (Tanner, 1962) and presumably, their body images have begun to stabilize, it is likely that, for many girls, problematic eating

patterns would also be developing by the ninth grade. Once set in motion, these unhealthy patterns are expected to generate a sense of failure and feelings of shame and guilt, and ultimately, to lead to increases in depressive affect. Second, most adolescents transition from junior high to high school between the eighth and ninth grades. This transition to an even larger school that demands more maturity and responsibility and continues to emphasize academic competition, may represent a turning point, one for which a new model of eating problems and depressive affect is warranted.

CHAPTER 2

METHOD

Sample

The sample consisted of female adolescents who were part of a larger study (N=258 girls) which examined the daily experience of both boys and girls during adolescence (Larson & Richards, 1989). Participants in the larger study were randomly selected from two suburban communities near a large midwestern city—one working class and the other middle class—and were predominantly Caucasian. The samples represented their respective community populations with few differences. Stratified sample selection resulted in equal representation by gender, grade, and community. Seventy percent of the students asked to be in the larger study successfully completed it; six percent agreed to participate but were disqualified from analysis due to inadequate or implausible data; and twenty four percent declined to participate or were not given permission to participate from their parents. A school survey showed that no differences in social class or self-esteem existed between those students who participated and those who refused to participate in the larger study (Larson, 1989).

In the larger study, four rounds of data were

collected. The adolescents selected for the present study were those females who participated in at least two consecutive rounds of data collection. There were 201 such girls—161 of which participated at Times 1 and 2, 141 of which participated at Times 2 and 3, and 146 of which participated at Times 3 and 4. Girls who participated in the present study and those from the larger study who dropped out were compared along the following measures: mean affect, mean arousal, eating attitudes, body image, self-esteem, depressive affect, externalizing behavior, internalizing behavior, closeness to mother and father, percent time with family, percent time in class, percent time with friends, and percent time alone. In addition, the groups were compared along measures of parents' marital status, maternal employment, father's socioeconomic status, mother's socioeconomic status, father's education, and mother's education.

When girls who had data at Time 2 were compared to those who were missing data at Time 2, several differences were found. Girls in the longitudinal sample reported slightly higher self-esteem ($F[1,241] = 6.78, p < .01$) and less depressive symptomology ($F[1,219] = 4.03, p < .05$); in addition, their fathers' were more educated ($\chi^2[2] = 7.35, p < .05$) and were of higher socioeconomic status ($F[1,192] = 4.82, p < .05$). Girls who had data at Time 3 also reported slightly higher self-esteem ($F[1,241] = 4.99,$

$p < .05$) than those girls who were missing data at Time 3. In addition, they spent a lower percentage of their time with friends ($F[1,241] = 8.19, p < .01$) and a higher percentage of their time in class ($F[1,241] = 40.61, p < .01$). Their mothers ($F[1,142] = 6.09, p < .05$) and fathers ($F[1,192] = 4.10, p < .05$) were of higher socioeconomic status as well. Finally, girls who had data at Time 4 were compared to those who were missing data at Time 4, and only one difference emerged: The former reported slightly higher self-esteem than the latter ($F[1,241] = 9.17, p < .01$). No other significant differences were found between any of the groups on any of the measures.

The female adolescents in this study were studied originally when in the fifth to ninth grades. Although some of the participants evidenced depressive symptoms and/or pathological eating at various times, the sample as a whole was nonclinical.

Procedures

For the larger study, the adolescents reported on their daily experiences according to the Experience Sampling Method (ESM) (Larson, 1989). They carried electronic pagers for one week. When signaled by their pagers (randomly within two-hour time blocks between 7:30 am and 9:30 pm), they completed self-reports on their current experiences, including their moods, activities, and

companionship. At the end of the week, participants were interviewed and completed a series of questionnaires. They were assured of the confidentiality of their information.

These same adolescents were studied every two years over six years. At Time 2, participants did not carry beepers but completed questionnaires similar to those they had filled out at Time 1. At Time 3, participants reported their current experience using pagers again (as they had at Time 1) and completed questionnaires similar to those they had filled out at Times 1 and 2. At Time 4, participants again did not carry beepers but completed questionnaires similar to those they had filled out at Times 1, 2 and 3. The questionnaires administered contained the instruments used to gather data for this study.

Measures

The following instruments were used to assess depressive affect and eating problems.

Depressive Affect

Depressive affect was assessed with the Child Depression Inventory (CDI) at Times 1, 2 and 3 and the Beck Depression Inventory, short form (BDI-S) at Time 4 (when the participants were older). The CDI (Kovacs, 1985) is a self-report scale consisting of items which quantify symptoms such as "mood and hedonic capacity, vegetative functions, self-evaluation, and interpersonal behaviors" (Kovacs, 1983, p. 5). It has been cited as the most widely

used self-report scale for childhood depression (Weller & Weller, 1985) and determined to be readable at the fourth grade level by some investigators (Berndt, Schwartz, & Kaiser, 1983) and at the first-grade level by others (Kazdin & Petti, 1982). The scale's reliability appears high (.86) as does its ability to discriminate normal children from hospitalized children (Saylor, Finch, Spirito, & Bennett, 1984) and depressed children from children with other diagnoses (Kovacs, 1983, 1985; O'Leary & Johnson, 1986; Saylor, Finch, & McIntosh, 1988). The CDI also correlates strongly with clinical interview measures of depression (Carlson & Cantwell, 1979; Garber, 1984). A higher CDI score indicates more depressive symptomology.

Within the CDI, the following five subscales are available for analysis at Times 1 and 3: anhedonia, behavioral disturbance, dysphoria, physical disturbance, and self deprecation. The short form of the CDI was used at Time 2; hence, subscales are not available at that time.

The BDI-S (Beck & Beck, 1972) is a self-report scale which assesses level of depression in terms of the degree to which 13 symptoms are endorsed. Scores for each symptom range from 0 (least severe) to 3 (most severe), and scores for overall degree of depressive symptomology range from 0 to 39, with 39 being the most severe. The BDI-S is highly correlated with the 21-item BDI in adolescent samples and has demonstrated concurrent and criterion validity with

both clinical and normal samples of adolescents (Barrera & Garrison-Jones, 1988; Kauth & Zettle, 1990; Roberts, Lewinsohn, & Seeley, 1991).

Eating Problems

Eating problems were examined with the Weight and Eating Concern scale (WEC) at Times 1, 3 and 4 and the Eating Attitudes Test-26 (EAT-26) at Times 2, 3, and 4. The WEC (Richards, Casper & Larson, 1990) assesses children and young adolescents for preoccupation with eating and weight maintenance using language that they can understand. The scale consists of the following 6 items that are rated with a 6-point Likert scale ranging from *Describes me very well* to *Does not describe me at all*: I am terrified about being overweight; I think about burning up calories when I exercise; I like my stomach to be empty; Eating too much makes me feel gross and ugly; When I am upset, I worry that I will start eating; I think about dieting. The first three of these items are also included in the EAT-26.

The WEC scale has interitem reliability (Cronbach's Alpha = .79 for girls and .75 for boys) (Richards et al., 1990). Validity data for the scale includes correlations of WEC scores with girls' reports of feelings of thinness on the ESM ($r = -.31, p < .01$), girls' perceptions of their weight ($r = .44, p < .001$), boys' perceptions of their weight ($r = .50, p < .001$), girls' satisfaction with their weight ($r = -.23, p < .05$), and boys' satisfaction with

their weight ($r = -.26, p < .05$). See Richards et al. (1990) for a more complete discussion of the validity of the WEC scale. Higher scores on the WEC reflect fewer weight and eating concerns.

The EAT-26 (Garner & Garfinkel, 1979) is a shortened version of the EAT, a 40-item measure of the behaviors and attitudes characteristic of anorexia nervosa. See Garner and Garfinkel (1979) for a discussion of the reliability and validity of the EAT-40. Items which are rated with a 6-point Likert scale ranging from *Always* to *Never* include: I avoid eating when I am hungry; I cut my food into small pieces; I vomit after I have eaten; I am preoccupied with a desire to be thinner; I give too much time and thought to food. The EAT-26 is highly correlated with the EAT ($r = .98$) (Garner, Olmstead, Bohr, & Garfinkel, 1982), indicating that the items eliminated from the EAT-40 were redundant. The EAT-26 is also highly correlated with the WEC ($r = .76$ at both Times 3 and 4 of this study), indicating that two measures tap similar attitudes and behaviors.

The EAT-26 has been used successfully to identify eating concerns and problems in nonclinical adolescent samples (Johnson-Sabine, Wood, Mann, & Wakeling, 1985; Williams, Schaefer, Shisslak, Gronwaldt, & Comerici, 1986). Higher scores on the EAT-26 reflect healthier eating attitudes and behaviors. Within the EAT-26, three subscales

are available for analysis at Times 2, 3, and 4: bulimia, oral control, and dieting.

Analysis of Data

Directional pathways were assessed by comparing depressive affect and eating problem scores at a) Times 1 and 2, b) Times 2 and 3, and c) Times 3 and 4. Regression techniques which incorporated the control variable from the previous data collection were employed. For example, when depressive affect at Time 2 was the criterion variable, the depressive affect score at Time 1 was entered into the regression equation first, followed by the eating problems score at Time 1. Father's socioeconomic status, mother's socioeconomic status, grade, and age were also entered into the regression equation when they significantly correlated with the criterion variable. Since different instrument forms were used to measure depressive affect and eating problems over time, all scores were standardized among the girls in the sample.

Subscales of the depressive affect and eating problem measures were also analyzed when available. Since the EAT-26 subscales were not available at Time 1, WEC scores were used as the control in the regression equation when the Time 2 EAT-26 subscales were the criterion variable. The Time 1 WEC is correlated with both the bulimia and dieting subscales at Time 2 ($r = .29, p < .01$ and $r = .40, p < .01$, respectively).

Participants were separated into three groups for data analysis. The 5th and 6th graders at Time 1 were combined to form the first group; they were followed from the 5th/6th grades through the 11th/12th grades, and hence, were used to test both hypotheses (early and later adolescence). The 7th and 8th graders at Time 1 were combined to form the second group; they were followed from the 7th/8th grades through one and two years post-high school, and were used to test only the second hypothesis (later adolescence). The 9th graders at Time 1 formed the third group. They were followed from the 9th grade through three years post-high school, and were used to test only the second hypothesis (later adolescence). Analyses for each of these three groups were conducted separately in order to examine possible developmental effects.

CHAPTER 3

RESULTS

Preliminary Analyses

Prior to testing the two hypotheses proposed, correlations were run among all variables for each grade group. The correlations for the depressive affect and eating problems variables, as well as their means and standard deviations, are displayed in Tables 1 and 2. Because different measures were used for depressive affect, and hence, the range of possible depressive affect scores varied across Times 1, 2, 3, and 4, the means in the tables were adjusted to make them comparable (see Notes in Tables 1 and 2). Adjustments were also made to the eating problems means. Since the EAT-26 subscale of Oral Control did not correlate significantly with any of the measures for any age group, it was dropped from analyses, and hence, will not be discussed in this paper.

As noted in Tables 1 and 2, depressive affect was correlated over time for each of the subgroups. For the 5th and 6th graders at Time 1, measures of depressive affect were strongly associated when the girls were in the 5th through 10th grades but were not so as they became older. With only one exception, measures of depressive affect for

TABLE 1
CORRELATIONS AMONG VARIABLES FOR 5TH/6TH GRADERS AND
7TH/8TH GRADERS

5th/6th graders (grades)	1 (5/6)	2 (7/8)	3 (9/10)	4 (11/12)	5 (5/6)	6 (7/8)	7 (9/10)	8 (11/12)
M (SD)	7.27 (4.47)	8.22* (3.80)	9.55 (5.28)	6.15 ^{ab} (4.49)	5.19 ^c (4.43)	9.14 (10.02)	11.44 (11.32)	13.01 (11.78)
1. Depressive affect (Time 1)	...	.40**	.37**	.09	.28*	.39**	.22	.13
2. Depressive affect (Time 2)	.51**	...	.37**	.15	.31**	.49**	.25	.06
3. Depressive affect (Time 3)	.30*	.54**	...	.20	.15	.39**	.22	.19
4. Depressive affect (Time 4)	.28*	.38**	.63**	...	.16	-.08	.05	.33**
5. Eating problems (Time 1)	.49**	.15	.36**	.30**	...	.30**	.47**	.34**
6. Eating problems (Time 2)	.05	.42**	.07	.13	.26*	...	.49**	.25**
7. Eating problems (Time 3)	-.09	.38**	.37**	.15	.16	.48**	...	.42**
8. Eating problems (Time 4)	-.17	.18	.33*	.25*	.24*	.45**	.50**	...
M (SD)	10.53 (7.42)	12.56* (4.80)	11.16 (7.49)	6.37 ^{ab} (5.03)	6.32 ^c (5.12)	11.36 (10.04)	11.53 (11.32)	11.01 (9.58)
7th/8th graders (grades)	1 (7/8)	2 (9/10)	3 (11/12)	4 (13/14)	5 (7/8)	6 (9/10)	7 (11/12)	8 (13/14)

Note: Data for two groups of girls are presented in this table: The 5th/6th graders at Time 1 are in the upper, right portion of the table, and the 7th/8th graders at Time 1 are in the lower, left portion of the table.

^aThe ranges of possible depressive affect scores are: Time 1 = 0-54; Time 2 = 0-28; Time 3 = 0-54; and Time 4 = 0-39. To facilitate comparison of scores over time, the depressive affect means at Times 2 and 4 in this table were adjusted so that the range for depressive affect scores at all four times is 0-54.

^bSince depressive affect at Time 4 was skewed, it was transformed (i.e., squared) before correlations and regressions were performed. The means and standard deviations in this table are those calculated prior to transformation.

^cThe ranges of possible eating problem scores are: Time 1 = 0-36; Time 2 = 0-78; Time 3 = 0-78; and Time 4 = 0-78. To facilitate comparison of scores over time, the eating problems mean at Time 1 in this table was adjusted so that the range for eating problem scores at all four times is 0-78.

* $p < .05$. ** $p < .01$.

TABLE 2
CORRELATIONS AMONG VARIABLES FOR 9TH GRADERS

9th graders (grade)	1 (9)	2 (11)	3 (13)	4 (15)	5 (9)	6 (11)	7 (13)	8 (15)
M (SD)	10.83 (5.90)	11.64 ^a (4.13)	9.10 (6.25)	6.45 ^{ab} (4.45)	7.37 ^c (5.03)	10.94 (7.55)	10.81 (11.63)	10.76 (10.80)
1. Depressive affect (Time 1)	...	.54**	.55**	.39*	.30	.26	.18	.03
2. Depressive affect (Time 2)		...	.14	.46*	.48**	.34	-.02	-.09
3. Depressive affect (Time 3)			...	.55**	.19	.19	.57**	.42**
4. Depressive affect (Time 4)				...	.38*	.31	.34	.25
5. Eating problems (Time 1)					...	.58**	.40*	.41*
6. Eating problems (Time 2)						...	.54**	.21
7. Eating problems (Time 3)							...	.51**
8. Eating problems (Time 4)								...

^aThe ranges of possible depressive affect scores are: Time 1 = 0-54; Time 2 = 0-28; Time 3 = 0-54; and Time 4 = 0-39. To facilitate comparison of scores over time, the depressive affect means at Times 2 and 4 in this table were adjusted so that the range for depressive affect scores at all four times is 0-54.

^bSince depressive affect at Time 4 was skewed, it was transformed (i.e., squared) before correlations and regressions were performed. The mean and standard deviation in this table are those calculated prior to transformation.

^cThe ranges of possible eating problem scores are: Time 1 = 0-36; Time 2 = 0-78; Time 3 = 0-78; and Time 4 = 0-78. To facilitate comparison of scores over time, the eating problems mean at Time 1 in this table was adjusted so that the range for eating problem scores at all four times is 0-78.

* $p < .05$. ** $p < .01$.

both older groups of girls were either moderately or strongly related over time.

In general, eating problems also appear to be related over time. In the 5th/6th grade sample, eating problems at every age were highly correlated. In both of the older samples, all but one of the correlations between eating problems were significant, though the correlations were less strong than those of the younger girls.

Correlations between depressive affect and eating problems were also examined. In general, cross-sectional measures of depressive affect and eating problems were strongly associated in the 5th through 8th graders. However, this was not the case for the 9th grade girls. The only significant, cross-sectional correlation between depressive affect and eating problems in the 9th grade group was found at Time 3, when the girls were one year post-high school.

Correlations between depressive affect and eating problems were also examined over time. Results indicated that, in the youngest group of girls (5th/6th graders at Time 1), contiguous (i.e., two years apart) measures of depressive affect and eating problems were significantly correlated when the girls were in the 5th through 8th grades. In the 7th/8th grade sample, however, depressive affect was significantly related to later eating problems when the girls were in the 7th through 10th grades.

Finally, in the oldest sample of girls, only two contiguous correlations were significant: Eating problems measured in the 9th grade were significantly related to depressive affect two years later, and depressive affect measured one year post-high school was significantly related to eating problems two years later. No other contiguous correlations between depressive affect and eating problems were significant.

Testing of Hypotheses

In addition to correlational analyses, regressions were conducted which permitted the exploration of 1) whether depressive affect predicted any change in future problematic eating behaviors and 2) whether eating problems predicted any change in future depressive symptomology. Regressions were also conducted using subscales of the depressive affect and eating problems measures to determine if specific components of the constructs were better (i.e., more significant) predictors of change. These regressions will now be presented in light of the two hypotheses of this study: 1) More depressive affect will predict increases in future eating problems in early adolescence and 2) More eating problems will predict increases in future depressive affect in later adolescence.

Hypothesis 1: Early Adolescence

The longitudinal data provided some support for the hypothesis that more depressive affect predicts increased

future eating problems in early adolescence. For instance, for girls in the 5th and 6th grades at Time 1, more depressive symptomology at Time 1 significantly predicted increased eating problems two years later, F change = 11.64, $p < .01$, $\beta = .42$, R^2 Change = .15. In addition, when the CDI subscales at Time 1 were analyzed, higher scores on the anhedonia subscale significantly predicted increased eating problems two years later, F change = 4.22, $p < .05$, $\beta = .25$, R^2 Change = .06, while higher scores on the CDI subscales of dysphoria, self deprecation, behavioral disturbance, and physical disturbance emerged as trends, $p < .10$.

When the EAT-26 subscales were employed as the criterion variable, more depressive affect at Time 1 in the 5th and 6th grade girls significantly predicted increases in bulimic behavior two years later, F change = 10.13, $p < .01$, $\beta = .37$, R^2 Change = .13. Depressive affect did not, however, significantly predict any change in dieting behavior in these girls. Of the Time 1 CDI subscales, only higher physical disturbance significantly predicted increased bulimia two years later, F change = 5.58, $p < .05$, $\beta = .28$, R^2 Change = .08. The anhedonia subscale approached significance, $p < .10$.

Hypothesis 2: Later Adolescence

The longitudinal data provided weak support for the hypothesis that more eating problems predict increased

future depressive affect in older adolescents. For example, for girls in the 5th and 6th grades at Time 1, more eating problems at Time 2 (when the girls were in the 7th/8th grades) significantly predicted more depressive affect two years later, F change = 5.18, $p < .05$, $\beta = .29$, R^2 Change = .07. Of the Time 2 EAT-26 subscales, only higher scores on dieting significantly predicted increases in depressive affect two years later, F change = 5.76, $p < .05$, $\beta = .30$, R^2 Change = .08.

Girls in the 9th grade at Time 1 showed a similar pattern, for more eating problems at Time 1 predicted higher depressive symptomology two years later, F change = 4.80, $p < .05$, $\beta = .34$, R^2 Change = .11. However, none of the 9th grade girls' EAT-26 subscales significantly predicted change in depressive affect two years later.

Two significant relationships emerged among those girls in the 7th and 8th grades at Time 1 which did not appear to support the hypothesis that more eating problems predict increases in future depressive affect in older adolescents: a) regression analysis from Time 1 to Time 2 indicated that more dysphoria predicted less dieting behavior two years later, F change = 4.26, $p < .05$, $\beta = -.26$, R^2 Change = .06; and b) regression analysis from Time 3 to Time 4 (when the girls transition from 11th/12th grades to one and two years post-high school) indicated that higher scores on self deprecation predicted fewer

eating problems two years later, F change = 4.63, $p < .05$, $\beta = .25$, R^2 Change = .06.

No other regressions conducted across any two consecutive times, for any of the grade groups, were significant. For a depiction of significant betas and all possible predictor and criterion variable configurations, see Table 3.

TABLE 3
SIGNIFICANT BETAS

Predictor variable	Criterion variable	5/6→7/8	7/8→9/10	9/10→11/12
Depressive affect	Eating problems	.42 _a **		
Dysphoria	Eating problems			
Self deprecation	Eating problems			
Behavioral disturbance	Eating problems			
Anhedonia	Eating problems	.25 _a *		
Physical disturbance	Eating problems			
Depressive affect	Bulimia	.37 _a **		
Dysphoria	Bulimia			
Self deprecation	Bulimia			
Behavioral disturbance	Bulimia			
Anhedonia	Bulimia			
Physical disturbance	Bulimia	.28 _a *		
Depressive affect	Dieting			
Dysphoria	Dieting		-.26 _b *	
Self deprecation	Dieting			
Behavioral disturbance	Dieting			
Anhedonia	Dieting			
Physical disturbance	Dieting			
Eating problems	Depressive affect		.29 _a *	.34 _c *
Bulimia	Depressive affect			
Dieting	Depressive affect		.30 _a *	

Notes: Since only one significant relationship emerged after girls reached 11th and 12th grades, only 5th through 12th grades are included in this table.

a = 5/6th graders at Time 1; b = 7/8th graders at Time 1; c = 9th graders at Time 1

* $p < .05$. ** $p < .01$.

CHAPTER 4

DISCUSSION

The results of this study are somewhat consistent with the hypotheses posited, providing limited evidence that more depressive affect predicts increased future eating problems in early adolescence, and weak evidence that more eating problems predict increased future depressive affect in later adolescence. The clearest and strongest relationship between eating problems and depressive affect appears to occur in the youngest girls studied—the 5th and 6th graders. Specifically, the depressive affect these girls reported during the 5th and 6th grades significantly predicted the extent to which they reportedly experienced more eating problems two years later. One possible explanation for this is that as some girls enter adolescence—and are faced with the onset of puberty, the transition to junior high school, and a thin cultural ideal for body weight—they experience depressive symptomology and use eating as a way to cope. This would be consistent with 1) the developmental literature which indicates that some girls experience distress and negative affect as they negotiate puberty (Dornbusch et al., 1984; Rierdan, Koff, & Stubbs, 1988) and the school transition (Petersen,

Sarigiani, & Kennedy, 1991; Wigfield et al., 1991), and 2) the directional studies that indicate that some females use eating as a way to block or regulate negative affect (Heatherton & Baumeister, 1991; Rosen & Leitenberg, 1985; Thompson, Berg & Shatford, 1987). Perhaps, as Cohen-Tovee (1993) found, it is those girls who place a high value on body shape and weight who are most at risk for turning to problematic eating as a way to cope during early adolescence.

Analysis of both the eating problems and depressive affect subscales provide further explanation about how the two constructs might be related in early adolescence. Although all of the depressive affect subscales examined when the girls were in the 5th and 6th grades appear to be related to changes in future eating problems, only the anhedonia subscale was a significant predictor. This suggests that it is perhaps the loss of pleasure or interest commonly associated with depression that is most related to increases in future eating disturbances in young adolescents. In addition, when dieting and bulimia were examined separately in these same girls, depressive affect (and elevated physical disturbance) predicted only bulimic behavior. These results suggest that in early adolescence, depressive affect may be particularly related to future bulimic behaviors such as bingeing and purging, and perhaps less so to restrictive eating behaviors. This is consistent

with the theory postulated by Heatherton and Baumeister (1991) which suggests that binge eating (and not dieting) is used to cope with negative affect because the act of bingeing narrows focus on immediate sensations, allowing individuals to escape from self-awareness and depressive feelings. If, as these researchers suggest, eating is used as a coping mechanism because it cuts girls off or numbs them from their emotional experience, perhaps bulimia is a more effective analgesic than dieting.

Weaker evidence exists for the second hypothesis that more depressive affect predicts increases in future eating problems in older adolescents. Evidence supporting the hypothesis includes the finding that when the 5th/6th grade girls whose depressive affect predicted changes in eating problems in early adolescence became older, a change in the relationship between depressive affect and eating problems occurred: More eating problems (and specifically, dieting behavior) significantly predicted increased depressive affect as the girls moved from the 7th/8th grades to the 9th/10th grades. More eating problems also predicted increased depressive affect in another group of females studied (the 9th graders at Time 1) as they moved from 9th to 11th grade. One possible explanation of these findings is, as girls begin to develop a pattern of problematic eating, the failure to meet diet and weight goals and the loss of control they likely experience may contribute to

increases in depressive affect during middle adolescence. These results would be consistent with Beebe's (1994) hopelessness hypothesis: Girls who have a depressogenic attributional style perceive dietary failure as a powerful negative event and infer stable, global negative characteristics about themselves as a result of their failure. This perception then contributes to the development of hopelessness, and ultimately, may lead to increases in depression. The results would also be consistent with McCarthy's (1990) theory regarding women, the thin ideal and depression: "Women who are dissatisfied with their bodies, who believe that they should be able to control this aspect of their life, experience a profound lack of control in an area that is important to them...and will be at risk for depression via helplessness" (p. 206).

Given the findings that more depressive affect predicts increased future bulimic behavior in some young adolescents and more dieting behavior predicts increased future depressive affect in some older adolescents, the results of this study also suggest that different relationships between eating problems and depressive affect may exist not only for girls who are at different developmental stages but also for girls who engage in different types of eating disturbances (i.e., restrictive versus bingeing). It would appear, based on the findings of this study, that 1) depressive affect leads to increased

bulimic behavior but bulimic behavior does not necessarily lead to increased depressive affect and 2) dieting leads to increases in depressive affect but depressive affect does not necessarily lead to increases in dieting. Perhaps this is the case because bulimia is primarily a mechanism through which some girls numb themselves from depressive affect (Heatherton and Baumeister, 1991), whereas dieting is primarily an activity which can lead to feelings of failure and hopelessness (Beebe, 1994; McCarthy, 1990).

Although more eating problems predicted increases in depressive affect in some older adolescents, this pattern did not emerge for all girls in the study. For instance, as the 7th/8th graders at Time 1 transitioned to 9th/10th grades, one of the depressive affect subscales (dysphoria) predicted decreases in dieting behavior two years later. In addition, as all of the girls became older, most influential relationships between depressive affect and eating problems ceased. For example, after the 5th/6th graders at Time 1 reached the 9th/10th grades, no significant influential relationships between the two constructs emerged. This lack of significant findings in the older girls may suggest that any influential relationship between depressive affect and eating problems falls off as girls reach and negotiate late adolescence.

Other possible explanations for the lack of strong evidence exist as well. For one, the two-year time interval

between points of data collection may have been too long to detect significant direction and influence if the relationship between eating problems and depressive affect operates on a more micro level. For example, both Beebe's (1994) hopelessness hypothesis and Heatherton and Baumeister's (1991) escape hypothesis suggest that depressive affect and bulimic behavior influence each other within a given binge-purge cycle; the present study would not have captured such micro-level fluctuations and influences. Secondly, it is possible that different relationships between eating problems and depressive affect exist for different subgroups (e.g., bulimics versus dieters). If this were the case, clear, significant influential relationships may have been diluted to some degree when aggregate scores were examined. Finally, it is also possible there was a lack of robust evidence supporting the hypotheses because eating problems and depressive affect are not predictive of change in one another. Perhaps they are both influenced by a third variable such as self-esteem or body image and simply develop concurrently. This would be consistent with Leung and Steiger's (1991) cross-lagged panel study of the two constructs, during which no significant directional relationship emerged between eating problems and depressive affect.

Although this study does provide limited evidence for

an influential relationship between eating problems and depressive affect—particularly in younger adolescents—there are several limitations to it. First, the sample consists primarily of Caucasian, middle class girls, and hence, may not be generalized to lower-class females or girls from minority groups. Second, the sample as a whole is nonclinical; as a result, findings may not be appropriately generalized to girls with clinical eating and affective disorders. In fact, a stronger set of relationships between depressive affect and eating problems (and their respective components) might be expected in a clinical sample. Third, self-report measures were used to assess both eating problems and depressive affect. As a result, it is possible that the relationships that emerged between the two phenomenon are the result of a particular response set—i.e., it is possible that participants reported negatively or positively overall, across measures. Finally, it is recognized that different measures were used to assess eating problems and depressive affect over time. Although it does not appear that the WEC was any less related to measures of depressive affect or eating problems than the EAT-26, use of the same measure for each dependent variable would have provided the most precise estimate of how the girls' scores changed throughout the study.

Despite these limitations, the findings of this study contribute to the dearth of longitudinal research in the

field of eating disorders and depressive affect and have potentially important implications. If depressive affect in early adolescence does indeed influence later eating problems, efforts to prevent eating disorders could be focused on identifying and treating early adolescent depression. In addition, if eating pathologically is one way early adolescents cope with depressive symptomology, other, more adaptive ways to cope with developmental changes and negative affect could be discussed and taught in families, schools and communities.

Since the exploration regarding the precise nature of the relationship between eating problems and depressive affect is still in its fledgling stages, further longitudinal research is needed to continue to explore the questions raised in this study. In addition, further research is needed that includes additional moderating variables such as pubertal timing, body image, and type of eating disturbance in order to delineate possible subgroups for which different and clearer relationships between eating problems and depressive affect might emerge.

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The final copies have been examined by the director of the thesis and the signature which appears below verifies that any necessary changes have been incorporated and that the thesis is now given final approval by the committee with reference to content and form.

The thesis is, therefore, accepted in partial fulfillment of the requirements for the degree of Master of Arts.

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